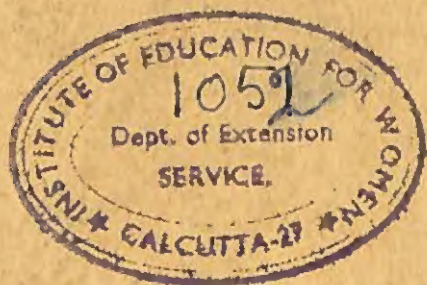


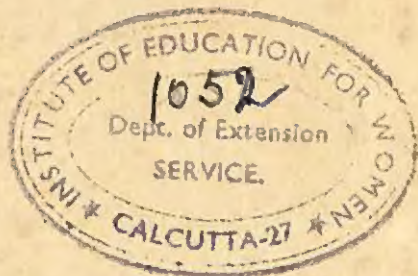
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# A HANDBOOK OF ANTHROPOLOGY



JYOTSNAKANTA BOSE

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A HANDBOOK OF  
ANTHROPOLOGY



BY

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## FOREWORD

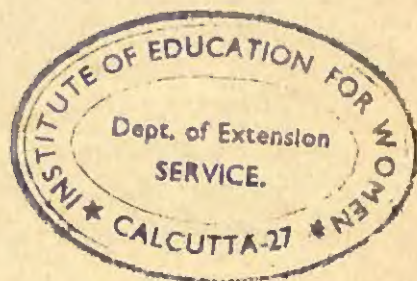
A small handbook on Anthropology scarcely needs any apology for its appearance specially in India. Anthropology, without doubt, is one of the most absorbing of studies for modern man, inside the University or outside. In the Western Universities this young science is marching on with rapid strides and every day conquering new citadels. In India, we must remain eternally grateful to that far-sighted educationist, Sir Asutosh Mookerjee, for introducing it as a subject for the Degree and Post-graduate Studies. It was a remarkable attempt, bravely carried out. But a systematic pursuit of the subject called for an earlier beginning. The present Vice-Chancellor, Mr. Syama Prosad Mookerjee, worthy son of that great man, has befittingly made provisions for its study in the Intermediate Classes. There can be no doubt that his experiment has a great future before it, and generations of students will take up this subject for their life-long devotion. But we are handicapped by the absence of any suitable book to be put in the hands of those who are coming forward to know this subject. The aim of this small book is only to supply this want. The author will feel more than amply repaid if his book encourages his readers to continue their acquaintance with anthropology, first formed through his modest endeavour.

The author takes this opportunity to express his gratitude to Dr. A. Chatterjee and Mr. H. C. Chakladar for their kind help and guidance.

J. K. B.

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## INTRODUCTION

As a social being, a man cannot always remain content with his own self; he cannot help taking interest in others. His interest begins with those near him—the members of his family, and spreads out to include human beings not only of the present but of the past. His curiosity is sure to be evoked, some time or other, by the differing sizes, shapes, complexions, habits, manners, modes of thought of the people round about him; the large variety of social customs and institutions can never escape his notice, leading to provoking questions to be formed in his mind. Anthropology—the Science of man—is an attempt to provide answers to such questions. The number and scope of such questions being unlimited, the interest of man in man being unending, no rigid bounding lines can be set to this Science. It is a science that can claim to include within its fold all the intellectual activities of mankind. But its especial aim is to unfold the mystery of the origin and growth of man—the story of human evolution. This aim is not merely academic. Its practical utility is beyond question. The days of isolation are over; we have arrived



at an epoch when communities and races must meet and embrace one another with brotherly greetings. The sense of human brotherhood can be best fostered by a training in Anthropology which reminds us of our common origin and destiny inspite of bewildering conflicts of to-day. "The story of man—how and when and where the various races originated and how they spread over the earth, the nature of the cultures, the differences, resemblances, and relationships of the various peoples, their activities and thought—is a subject of universal and absorbing interest. But more than this, this study is vital to a true appreciation of our modern social order and to correct perception of the evolution of man himself".

# A HANDBOOK OF ANTHROPOLOGY

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## CHAPTER I

### MAN'S PLACE IN THE ANIMAL KINGDOM

Anthropology is defined as the Science of Man (from Gr. *anthropos*, man; *logos*, theory). It takes into consideration both cultural and physical characteristics of man. In the cultural side it includes Philology, Archaeology, Psychology, Sociology, Religion and Folklore. The physical side includes Comparative Anatomy, Pathology, Physiology, Biology, Palaeontology and Biometry. But the first question that presents itself to an Anthropologist is—when and how man originated on earth? To this question various answers have been suggested.

#### *Geological Division of Time.*

The age of the earth has been calculated by different Scientists as varying from 1000 to 5000



million years. This long period of time is conveniently divided into several eras.

- (1) Archaeozoic era.
- (2) Proterozoic era.
- (3) Palaeozoic era.
- (4) Mesozoic era.
- (5) Cenozoic era.

In the Archaeozoic era the first form of life—larval life, began. The Proterozoic era has been called the age of invertebrate life. In this era the primitive marine invertebrates appeared. Next we come to the Palaeozoic era which has been divided into three epochs—early, middle and upper. With the early Palaeozoic era marine vertebrates appeared. The first forests and the first vertebrates represented by fishes were the true characteristics of the middle Palaeozoic. The true era of amphibians came in with the upper Palaeozoic. The Mesozoic era has been divided into Triassic, Jurassic and Cretaceous epochs. The whole Mesozoic era is preeminently an age of reptiles but before its close true birds and small archaic mammals appeared. The Cenozoic era is represented as the age of mammals and culminates

in the appearance of man. It is divided into five epochs—Eocene, Oligocene, Miocene, Pliocene and Pleistocene. The Eocene is characterised by the spread of placental mammals; the Oligocene by the rise of anthropoids; the Miocene by the culmination of mammals and of land plants; the Pliocene by the branching of the human stem from the parent ape trunk and the Pleistocene by man's gradual conquest of his environment.

### *Life and Man.*

The first occurrence of life is almost as old as the earth itself. There are two forms of life—plant life and animal life. In the beginning life was very simple—unicellular, but in course of time multicellular animals have become numerous. In their simplest forms distinction between plant and animal life was very difficult to perceive but later on both of them grew in complexity and diversity. Their combination forms the organic world. Though now-a-days plant-world is separated from the animal-world still it is difficult to set them apart completely. Moreover they are akin to each other and form the different branches and twigs of the same tree. It is also very difficult to set up any rigid barrier between the different forms of life among the animals. Different forms

of life spread out in different branches and twigs of the same tree and living man occupies the top-most twig of this tree and may be traced back to the trunk through the different branches and twigs of the tree. This tree with its various bifurcated branches and twigs in different directions is the evolutionary tree of life from the simplest form to the present complicated forms of living organism.

*Man's Place among the Mammals.*

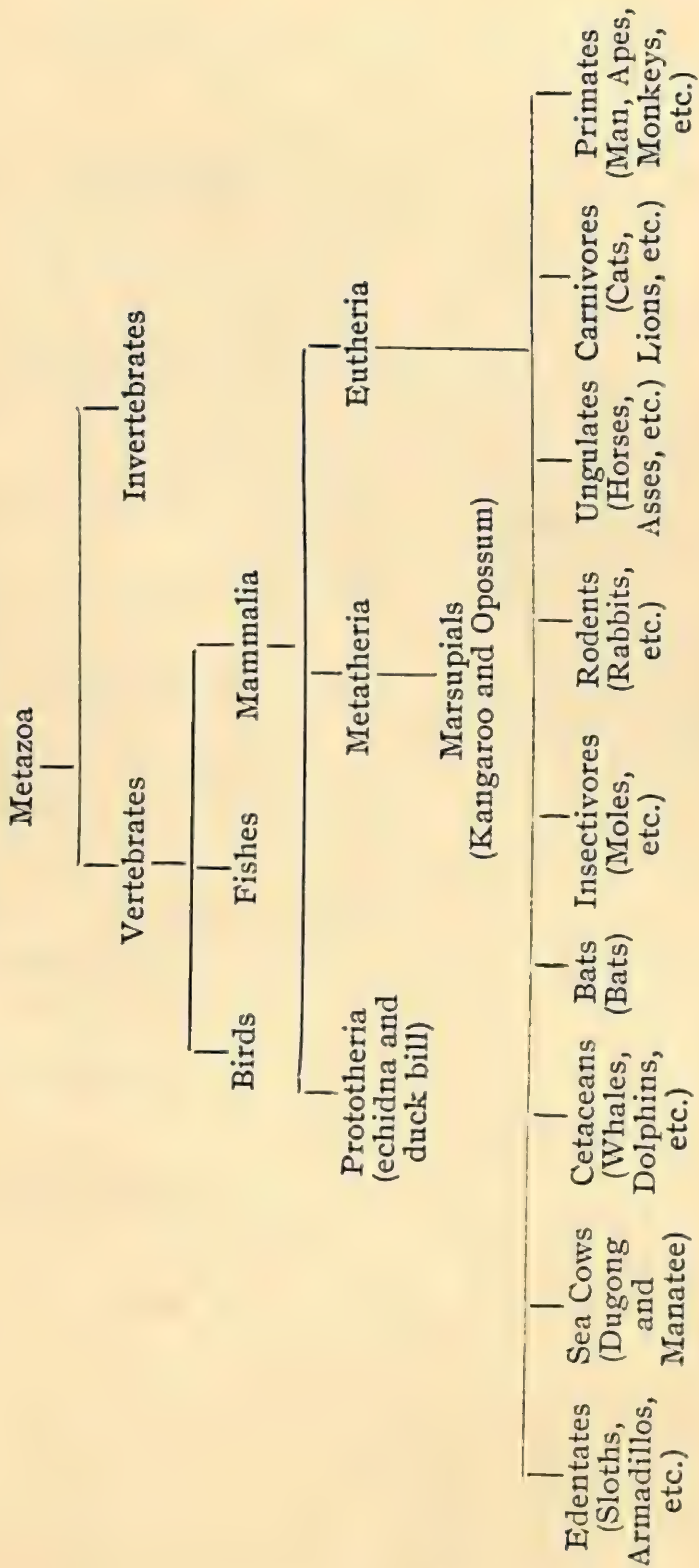
In the animal kingdom there are unicellular and multicellular animals. The unicellular animals are known as Protozoa and multicellular animals as Metazoa. Man is a multicellular animal and belongs to the great class Metazoa. The presence of a spinal column in man shows that he belongs to the group of vertebrates and not the invertebrates. Some of the distinctive features of man are also common to all animals of the class Mammalia. Class Mammalia is divided into three subclasses : Prototheria, Metatheria and Eutheria. Prototheria are represented by the duckbill and the echidna of Australia. Metatheria include marsupials such as the kangaroo and the opossum. Eutheria nourish the young within the uterus by means of placenta. Man belongs to this subclass.



The subclass Eutheria is divided into nine orders :

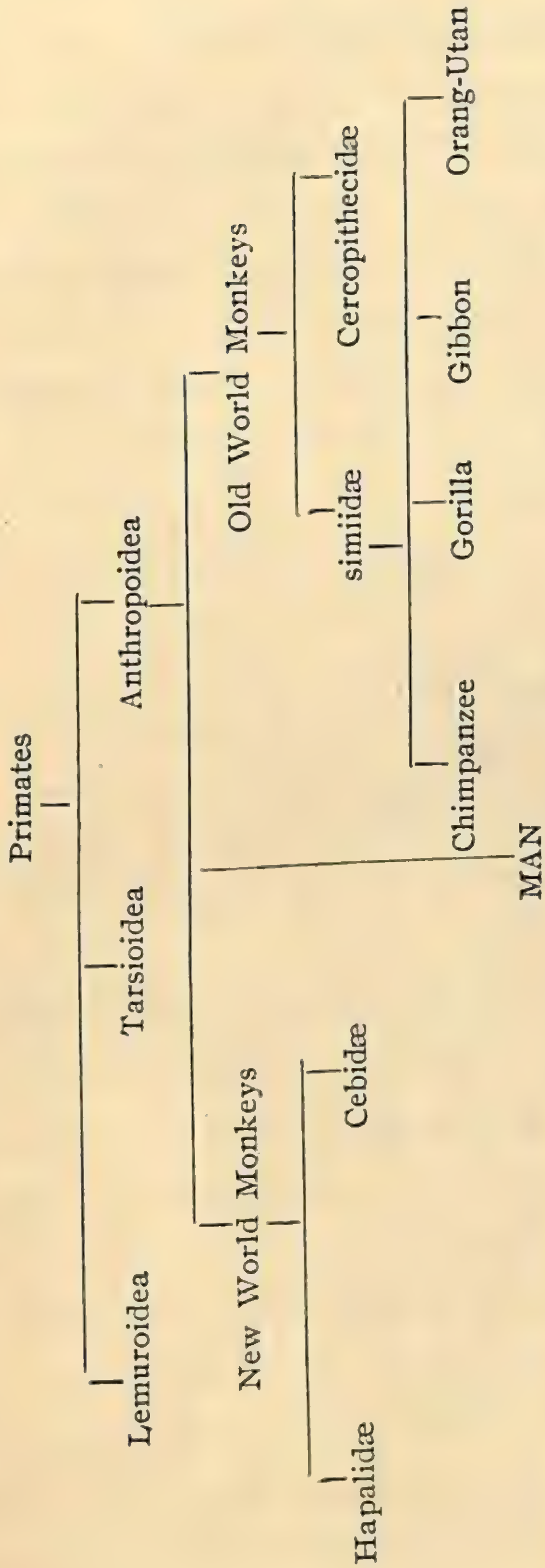
ORDERS.	MEMBERS.
Edentates (Toothless mammals)	Sloths, Armadillos, Ant-eaters etc.
Sea Cows (Water mammals)	Dugong and Manatee
Cetaceans (Hairless marine mammals)	Whales, Porpoises and Dolphins
Bats (Flying mammals)	Bats only
Insectivores (Insect-eating mammals)	Moles, Shrews etc.
Rodents (Gnawing mammals)	Rabbits, Squirrels, Rats etc.
Ungulates (Hoofed mammals)	Cattle, Sheep, Goats, Horses, Deer, Elephants etc.
Carnivores (Flesh-eating mammals)	Cats, Lion, Tigers, Dogs etc.
Primates	Man, Apes, Monkeys and Lemurs.

FAMILY TREE OF MAN.



(Continued on the opposite page)

FAMILY TREE OF MAN.



(Continued from the preceding page)



*Characteristic features of the Primates.*

There are some characteristic features common to the Primates, such as prehensile hands and feet, the presence of a clavicle or collarbone, forelimbs adapted for grasping and terminating in hands with flat nails instead of claws, two mammary glands on the breast, teeth adapted for a mixed diet and a brain of greater size and intricacy of pattern.

This Order is again divided into three sub-orders :

Lemuroidea

Tarsioidea

Anthropoidea

In Lemuroidea the eyes are set in a bony ring and directed outward.

In Tarsioidea the eyes have a bony backwall forming a bowl and they are directed forward.

In Anthropoidea the eyes are directed forward and have a bony backwall; tear ducts are present within the orbits; the brain is relatively large and complex; there is only one pair of mammary glands located on the chest; the claws are absent on toes and fingers except in one family.

To Anthropoidea belong the New World monkeys and the Old World monkeys. There are

two families—Hapalidae and Cebidae—in the New World monkeys and two families—Cercopithecidae and Simiidae—in the Old World monkeys.

The New World monkeys are platyrrhine and have three premolars. Hapalidae are related to Lemurs in certain characters and are the smallest of the monkeys. They have 32 teeth as in the case of man, but they have 3 premolars and 2 molars in place of 2 premolars and 3 molars as in men. Their digits are not opposable. The tail is non-prehensile and they live in trees.

Cebidae are completely arboreal. They have widely separated nostrills; their tails are generally prehensile; the thumb is barely opposable. They have 36 teeth (3 premolars and 3 molars).

The dental formula of the Old World monkeys is the same as in man (2 premolars and 3 molars). Their nostrills close together. The tails are non-prehensile and sometimes rudimentary as in the Barbary Ape. Cercopithecidae have several genera. In *Semnopithecus* the thumb is vestigial but in *Cercopithecus* the thumb is well-developed and the cheek pouches are present.

Amongst the members of the family Simiidae, the cheek pouches and the tails are absent. Their arms are relatively longer than the legs and the chest is relatively wider and shallower. There are

four genera: the gibbon, the orang-utan, the chimpanzee and the gorilla.

The gibbons are the smallest of the anthropoids and are arboreal in habit. They have prehensile feet, extraordinary long arms, small naked callosities on the buttocks, nails almost like claws and thirteen pairs of ribs. They generally walk erect and are found in Southern Asia and Malay Archipelago.

The orang-utans are much larger and stronger than the gibbons. Their legs are very short but their arms and hands are long. They have a large round (brachycephalic) head with a relatively small brain. They have a prominent abdomen and twelve pairs of ribs. The males are armed with strong canine teeth. They are almost exclusively arboreal and build nests in the branches of trees. They give birth to one offspring at a time. They are generally found in Borneo and Sumatra.

The chimpanzees resemble Man more closely than the other anthropoid apes. The skull is elongated but it lacks parietal and occipital crests; the supra-orbital ridges are prominent. The limb proportions are more like those of man than those of the orang-utan. They are arboreal in habit and



build nests in the branches of trees. They are found in the equatorial forests of Africa.

The gorillas are the largest of the apes and are stronger and more robust than men. The skull is elongated (dolichocephalic) and in old males, great bony crests, strong supra-orbital ridges and powerful canine teeth are found. The ears are small and the foot is not unlike the human foot. They mostly live on the ground and are found in the Gaboon region of Western Equatorial Africa.

*Anatomical Differences between Man and Ape.*

(1) The most important feature in Man is the great development of the cerebral portion of the skull in which the brain is lodged, and the associated reduction in size of the facial part of the skull.

According to Cuvier "Of all the animals, Man has the largest cranium and the smallest face; as animals deviate from these proportions, so they become more stupid or more fierce".

(2) The possession of articulate language by Man.

(3) The dental formula of the Man and the ape is the same but there are some marked differences in the shape and size of the teeth. The

canines are highly developed in the apes but in Man they are so diminished in size that they either do not exceed or slightly exceed the general level of the other teeth.

(4) Man alone is characterised by a perfect erect posture. Some of the anthropoid apes possess it in an imperfect degree.

(5) "The vertebral column of man is inserted in such a way at the base of the skull that in his normal upright position, the skull is well balanced on the first vertebra and the occipital foramen lies in a horizontal plane and is placed beneath the skull. In Lemurs, as in other four-footed mammals, the axis of the skull and of the vertebral column lie in line with each other, and the occipital foramen, placed almost in a vertical plane, occupies the hinder portion of the skull."

(6) Certain differences in the vertebral column are also effected by the erect posture. In monkeys the column shows only two curves, a dorsal and sacral, both concave in front. These two curves are also found in the unborn and new-born child of man but as soon as the child tries to stand up and walk erect, the vertebral column undergoes profound modifications and four curves appear; a cervical curve, concave at the back; a dorsal curve, concave in front; a lumbar curve,

concave at the back; and a sacral curve, concave in front. As these curves follow each other alternately, the weight of the head and trunk falls principally upon the pelvis and then transmits it in line with the general direction of the column and in this way equilibrium in an erect posture is easily attained.

(7) With the erect posture the form of the pelvis is also modified. In the pelvis of Man, the iliac bones are widened and spread out in the form of a bowl and give easy support to the abdominal viscera. In monkeys, the pelvis does not bear all the weight of the intestines and so the iliac bones are narrow and almost parallel to the sacrum.

(8) In the anthropoid apes, the first toe is shorter than the others and is widely separated. It is also opposable to the other digits and plays the part of a thumb; so the foot turns into a hand. In Man, the great toe is the largest of all the digits and is not opposable to the others. Moreover, all the digits are closely pressed against the others.

### *Distinctive Characteristics of Man.*

Man differs from other primates in having a nose with prominent bridge and tip; in the absence of a hairy coat; in his fully erect attitude;



in the median furrow in upper lip; in the development of a large lobule to the external ear; in relatively large brain (two or three times as large as the gorilla's); in his flattened foot with the non-opposable great toe; in the straight limb bones; in the wider pelvis; in the delicacy of hand; in the marked sigmoid flexure of his spine; in the perfection of the muscular movements of the arm; in the smallness of the canine teeth and other dental peculiarities; in the development of a chin; and in the small size of his jaws compared to the relatively great size of the cranium.

In the words of Dr. E. A. Hooton of Harvard University "The lemur insinuates that he is our remote relation; the monkey asserts his kinship with us, the anthropoid ape proclaims it from the tree-tops. Man shows his primate origin in every bodily character, and if he is a rational being he must admit this self-evident relationship."

## CHAPTER II

### HUMAN SKELETON

There are about 200 separate bones in the human body weighing together about twenty pounds. These bones are found in the shape of rods, nodules and platelets and are composed of phosphate and carbonate of lime. They give shape and meaning to the muscles attached to them, facilitate mobility, maintain posture and protect vital parts.

The skeleton may be defined as the sumtotal of white and hard organs called bones. It is divided into three parts—head, trunk, and upper and lower extremities.

Head consists of cranium and face. A cranium is a bony case formed by eight bones. They are as follows :—

- 1 *Frontal*—in the front of the head ;
- 1 *Occipital*—in the back, the bone is pierced by a foramen presenting two rounded protuberances called condyles ;
- 2 *Parietals*—on the sides, forming the side walls and roof of the cranium ;

2 *Temporals*—on the sides, largely forming the cranial base;

1 *Sphenoid*—forming the cranial, orbital and nasal cavities;

1 *Ethmoid*—lies in front of the sphenoid between the orbital plates;

Face consists of fourteen bones :—

2 *Maxillæ*—forming the upper jaw in which the upper set of teeth is attached;

1 *Mandible*—the lower jaw which contains the lower set of teeth;

2 *Palatines*—forming the back of the palate and the nasal cavity;

2 *Malars*—on both sides of the face, also known as cheek-bones;

2 *Nasals*—forming the bridge of the nose;

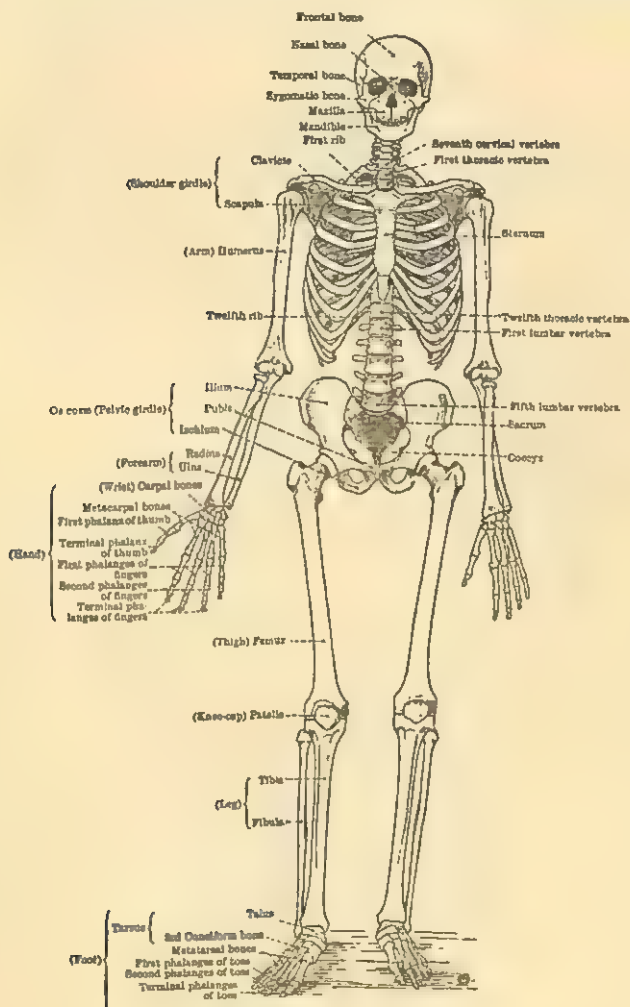
2 *Lacrinals*—forming part of the medial orbital wall;

2 *Inferior Turbinated*—forming part of the nose;

1 *Vomer*—lies in the back of the nasal septum;

The trunk consists of the vertebral column, the sternum and the ribs. The vertebral column

is composed of 33 bones and are divided into cervical, thoracic, lumbar, sacral and coccygeal.



SKELETON OF A MALE.



- 7 *Cervicals*—They constitute the bony axis of the neck. The first vertebra on which the head moves is known as *atlas*—a mythological name derived from the name of the giant Atlas who supported the heaven on his shoulders;
- 12 *Thoracic*—These vertebræ are the bones of the back;
- 5 *Lumbars*—the bones of the abdomen;
- 1 *Sacrum*—composed of five sacral vertebræ which are fused together and lie at the back of the pelvis;
- 1 *Coccyx*—forms the end of the vertebral column and is composed of four small incomplete vertebræ fused together.
- 1 *Sternum*—it is a flat dagger-shaped bone and is divided into three parts—the manubrium, the body and the xiphoid process;
- 24 *Ribs*—there are twelve ribs on each side. The cartilages of the upper seven ribs on each side are directly attached to the sternum and they are known as true ribs. The lower five ribs on each side are connected with the cartilage above and they are known as false ribs.

The bones of the upper extremity are 64 in number and consist of the shoulder, the upper arm, the fore-arm and the hand :

2 *Scapulæ*—one on each side triangular in shape and lies on the back ;

2 *Clavicles*—lies in front of the thorax at the root of the neck ;

2 *Humeri*—long bones of the upper arm ;

2 *Ulnæ* and 2 *Radii*—the bones of the forearm ;

Hand includes carpus, metacarpus and phalanges :

16 *Carpals*—eight in each hand ; they are scaphoid, semilunar, cuneiform, pisiform, trapezium, trapezoid, os magnum and unciform ;

10 *Metacarpals*—five in each hand corresponding to each digit ;

28 *Phalanges*—fourteen in each hand ; three in each finger and two in the thumb ;

The lower extremity consists of the pelvic girdle, the thigh, the leg and the foot :

2 *Hip Bones*—one on each side ; formed by the fusion of three bones—ilium, ischium and pubis ;

- 2 *Femurs*—extends from the hip joint to the knee;
- 2 *Patellæ or Knee-caps*—flat oval-shaped bone above the knee-joint;
- 2 *Tibiæ and 2 Fibulæ or leg-bones*—extend from the knee to the ankle;
- 14 *Tarsals*—each foot has seven tarsal bones—talus, calcaneous, navicular, cuboid and three cuneiforms;
- 28 *Phalanges*—14 on each foot; the great toe has two phalanges and the other toes have three.

In addition to these bones there are 1 *Hyoid* and 6 *Tympanic Ossicles* :

- 1 *Hyoid*—it lies in front of the neck, below the mandible and the tongue.
- 6 *Tympanic Ossicles or ear-bones*—They are small bones situated in the tympanic cavity. They are three in number on each side—incus, stapes and malleous.

## CHAPTER III

### FOSSIL MEN

#### *Definition*

“The word fossil is derived from the Latin *fossilis*, which in turn comes from *fodere*, meaning to dig up, and in older usage implied anything which was dug out of the earth, whether mineral, rock, or organic in origin. Later the term was restricted to include the organic only and not the minerals or rocks.”

Fossils are classified into several convenient heads according to their manner of preservation.

(1) Fossils actually preserved in ice or frozen soil, in oil or in amber.

(2) Petrification—It applies to those fossils in which the animal matter is partly or wholly replaced by some mineralizing substance, such as iron oxide, pyrites, sulphur, malachite, magnesite, carbon etc.

(3) Natural moulds or casts of the plant or animal with no trace of the original material retained.

(4) Fossil footprints and trails of creatures both vertebrate and invertebrate.



(5) Coprolites—"Coprolites are fossil rejectamenta often found in association with the animals which made them. These give an admirable clue to feeding habits."

(6) Artificial Structures—The various implements and other objects made by fossil man.

### *How to determine the age of Fossils*

The age of fossils is determined "by the known position in the geologic column of the rocks containing them, or, if the particular fossil represents a form new to science, by certain of the associated organisms which have previously been identified."

### The Java Man (*Pithecanthropus erectus*)

The most primitive type of fossil remains was discovered by Eugene Dubois of Holland near Trinil, Java, in 1891 and 1892. This is known as *Pithecanthropus erectus* or ape-man. The remains include a skull cap, a thigh bone, and three teeth. According to Dubois the layers on which these remains were found were of Pliocene epoch. But other scientists refer them to be of Pleistocene epoch. The layers on which the remains of the ape-man were found also contained fossils of different animals such as *Stegodon*,



THE JAVA MAN.  
(*Pithecanthropus erectus*).



THE PILTDOWN MAN.  
(*Eoanthropus dawsoni*).

Rhinoceros, Tapir, a Hippopotamus with archaic characters etc.

The skull-cap is low and narrow and gives a cephalic index of 70 (dolichocephalic). The capacity of the skull is relatively small and is estimated as about 850 cubic centimetres. The supra-orbital portion presents a continuous ridge comparable to the gibbons and chimpanzees. The forehead is narrow and receding and the skull vault is low.

The femur which was found at the same level nearby is relatively long and straight. It approaches the human type more closely than the cranium. In its entire structure it suggests that its possessor had the knowledge of standing and walking erect.

The teeth found are three in number : a premolar and two last upper molars (wisdom teeth). The premolar is small and not unlike a human lower premolar. The molars have strong and bifurcated roots like the ape's but the crowns are relatively more developed in a transverse than in a longitudinal direction like man's.

The two pieces of the lower jaw from Trinil and Kedung Brubus belong to two individuals of the same genus since both were associated with the same fauna and had undergone the same

degree of fossilization. The mandibular fragment with the lower premolar found at Trinil throws important light on the general facial aspect of the Java man. The fragment from the right side of the chin region of a lower jaw from Kedung Brubus also supports in every way the kind of lower jaw that must have held the Trinil premolar. This piece is large enough to give an accurate idea of the shape and structure of the chin region of the Java man.

The endocranial cast enabled Dubois to gain an idea of the brain of the fossil. The convolutions seem to be of human type but the centres of sensation are well developed as in apes; the association centres are much less developed than in man. According to Dubois the ape-man had a rudimentary articulate language.

From the study of the fossil remains Dubois came to the conclusion that the Java man was intermediate in type between the present-day man and that of the apes.

The remains of the Java man are preserved in the Teyler Museum at Haarlem, Holland.

The Pekin Man (*Sinanthropus pekinensis*)

In 1903 M. Schlosser received a collection of bones from Pekin, China. In this collection there



was a left upper molar which probably belonged either to a man or to an unknown anthropoid ape. The locality and the age of the deposit were unknown at the time, so it was difficult for him to come to any definite conclusion. In his opinion the tooth was probably the most ancient human tooth known at that time and showed closer resemblance to the apes than to any other human fossil. He was so much convinced that he sent messages to the investigators in China to search for the remains of a new fossil of Pliocene or Pleistocene man.

In 1921 J. G. Anderson discovered the cave of Chou Kou Tien near Peking which was rich in fossils. Between 1923 and 1926 two human teeth were found from the cave and in 1927 another human tooth was added to the collection. In 1928 an adult human lower jaw with three molar teeth and other teeth were also recovered from the deposit. In 1929, W. C. Pei discovered a complete human cranium excepting the face and a portion of the base of the skull. The skull belonged to a young adult male and contains certain features common to the Java and the Piltdown man. The walls of the skull are very thick and the cranial cavity small. In 1930 upper portion of another skull was recovered from

the same cave. This skull probably belonged to a young adult female and represents many primitive characters. The remains of the Pekin man were recovered from a depth of about 110 feet. It is difficult to determine the age of the fossil remains excepting through the associated fossil animals which belonged to the early phase of the Pleistocene.

According to Elliot Smith "The brain case of *Sinanthropus* reveals many features which are unknown either in the Ape-man of Java or in the Piltdown skull, and throws a great deal of light upon the characters of the common ancestor of the human family, from which all these genera had been derived."

### The Heidelberg Man (*Homo heidelbergensis*)

In 1907, Otto Schoetensack of Heidelberg University found a human lower jaw at a depth of about eighty-two feet in a sand pit near Mauer south-west of Heidelberg. The Mauer sands belonged to the early Pleistocene age and yielded fossil remains such as rhinoceros, bison, elephant, dog etc.

The jaw is massive and strong. The ascending rami are broad and low and almost square in form. The horizontal rami are high and massive. The symphysis is very thick with a convex reced-

ing curve and the chin is absent. All these show simian features. But the dentition is distinctly human, not only in their general appearances but also in their sizes. The incisors are normal; the canines are small and do not go beyond the general level of the other teeth; the premolars are quite normal and the molars have the dimensions and characters of modern man. The teeth are worn to a great extent proving that the individual, probably a male, had reached the adult age.

From a detailed study of the remains scientists are of opinion that the owner of this jaw was probably an ancient representative of the Palaeolithic stone workers.

The jaw is preserved in the Geological-Palaeontological Institute, Heidelberg.

The Piltdown Man (*Eoanthropus dawsoni*).

Between 1911 and 1913 Charles Dawson made an important discovery in a gravel pit at Piltdown in Sussex, England. The remains include large portions of a human cranium, right half of a lower jaw with the first and second true molars in position. Subsequently in 1915 about two miles from this site fragments of another skull, some nasal bones and a lower molar were unearthed. Scientists are of opinion that the two

individuals were of the same age and belonged to the same race. The human remains were associated with crude flint tools and fossil remains of animals such as mastodon, stegodon, rhinoceros, red deer etc. The stratigraphical, archaeological and palaeontological data justify in dating it to the Pleistocene epoch.

The reconstruction of the brain-box has been rendered possible through the four pieces of the first skull. The largest of these pieces are the frontal and the parietal portions of the left side. The left temporal bone is also complete and well-preserved. But these two pieces have no point of contact with the two others, which belong to the right half of the cranium and consist of the larger portion of the parietal and the median region of the occipital. This gap has led to the differences of opinion among scientists as to the reconstruction of the skull.

The bones are normal and their thickness is remarkable resembling in this respect those of Pekin Man. From the study of the left frontal region it is ascertained that the supra-orbital ridges were not more developed than in modern man.

Nasal bones are relatively small and broad and are very human in character. The skull as

reconstructed by Smith Woodward is mesocephalic with a cephalic index of 78 and the vault is slightly flattened. The cranial capacity is about 1300 cubic centimetres comparable to the present-day primitive peoples' as the Andaman Islanders, Bushmen or Australians.

The lower jaw is simian in character. The ascending ramus is very broad and the mandibular notch is not very deep. The lower symphyseal region is more like the ape's than man's. From the study of different characters it is suggested that the Piltdown mandible has a closer resemblance to the chimpanzee than to modern man. The canine tooth also differs from a human canine in most of its characters.

According to Smith Woodward the skull and the jaw belong to the same individual probably of a female and this view is also supported by Sir A. Keith. But other scientists differ from this view point and they attribute the jaw to a Pleistocene species of chimpanzee.

Geologically the Piltdown and the Pekin man were approximately of the same age and were little more recent than the Java man. According to Keith, Java man branched off from the human stem in Miocene time and the Piltdown and the Pekin man branched off in the early Pliocene age.



He also believes that the Piltdown man is the early Pleistocene ancestor of the modern races of mankind.

The Piltdown remains are preserved in the Natural History Museum, South Kensington, London.

The Neanderthal Man (*Homo neanderthalensis*)

The middle Palaeolithic Period is marked by the wealth of human fossils and at least forty fossil remains were unearthed from different parts of the world. This is the only fossil race of which we have ample evidence. This fossil man is variously described as *Homo neanderthalensis*, *Homo primigenius*, *Homo mousteriensis*, *Homo antiquus* etc. but it is commonly known as the Neanderthal man.

The first discovery of the fossil was made at Gibraltar in 1848 but it was not recognised until after the discovery of a skull and other bones at Neanderthal in 1857.

The Neanderthal skulls are mostly uniform. They are dolichocephalic and the average index ranges between seventy and seventy-six. The supra-orbital ridges are well-developed and continuous; the orbits are enormous and rounded in shape. The cheekbones are prominent and

external occipital protuberance is absent. The nose is depressed at the root and is separated from the forehead; the facial region is disproportionately developed against the cerebral region. The foramen magnum is situated in a relatively backward position.

The lower jaw is very strong and massive and it corresponds in size to the skull. The chin is rudimentary and receding. The average brain capacity of the Neanderthal man is about 1450 cubic centimetres.

The Neanderthal Race lived for a long time and afterwards became extinct but the remains discovered from different places have given us ample proof of its long existence during the Middle Palaeolithic Period.

In Asia Neanderthal skeletons were unearthed from Galilee and Palestine.

### *La Chapelle-aux-Saints*

This fossil was by far the most complete and well-preserved specimen of the Neanderthal Race. In 1908 the remains were found in a small cave in the Correze District, France. The layer on which the fossil was found, was rich in flint tools and two well-known Mousterian types—scrapers and points—were found on this layer. The bed

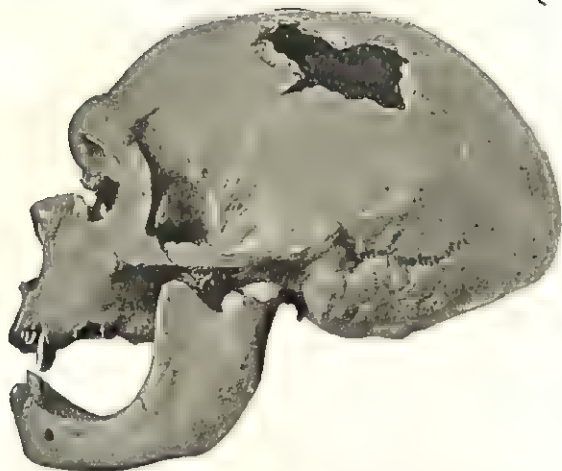
was also rich in animal fossils such as woolly rhinoceros, reindeer, extinct bison, cave hyæna etc.

The great size of the skull is the first to attract the notice of an observer in relation to the short stature of the individual. The simian characters are marked in the fossil. The skull is dolichocephalic with low skull vault; the supra-orbital ridges are marked and the forehead is receding; the nose is short and very broad and separated from the forehead by a deep depression; the face is long and projects forward and the orbits are enormous; the lower jaw is strong and massive.

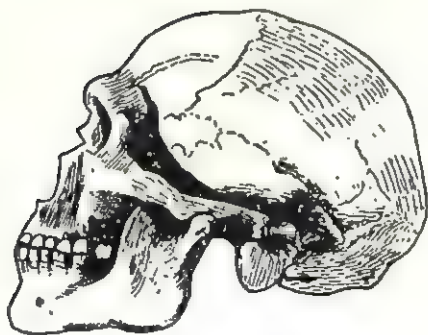
The skeleton is preserved in the Museum of Natural History, Paris.

### The Cro-Magnon Man

About twenty years after the discovery of the Neanderthal man the skeleton remains of a new race were discovered from the rock shelter of Cro-Magnon at Les Eyzies, France. Remains of five skeletons were found on the floors of the cave associated with flint implements of Aurignacian times, fossil remains of animals and a large quantity of sea-shells. These remains include the skeletons of an old man, two adult men, an infant and a woman. The skull of the old man exhibits the characters of this race in a marked degree.



THE NEANDERTHAL MAN.  
(*La Chapelle-aux-Saints*).



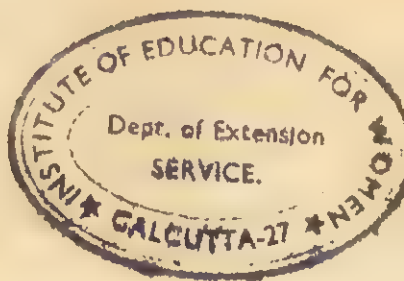
THE CRO-MAGNON MAN.

The skull of the old man is dolicho-cephalic (C.I. 73.7) and the cranial capacity is about 1590 cubic centimetres. The vault of the skull is high; the supra-orbital ridges are slight and the forehead is high. The nose is long, narrow and prominent (leptorrhine). The face is flat and broad and exhibits pronounced prognathism. The cheek-bones are well-developed and prominent and the chin is pointed.

The long bones indicate the great height (5 feet 11 inches) and good physique of this race. The muscle imprints on the bones are strongly marked.

Cro-Magnon man may be regarded as the summit of the human evolution. It is the oldest race of the species to which *Homo sapiens* belong.

The remains are preserved in the Museum of Natural History, Paris.





## CHAPTER IV

### PREHISTORY

Prehistory or Prehistoric Archaeology attempts to discuss systematically the various civilizations of mankind in different parts of the world during those early periods whence no historical data were forthcoming. It is mainly connected with Geology, Human Palaeontology and Ethnology.

C. J. Thomsen (1788—1865) of Denmark first laid the foundation for a system of prehistoric chronology. The sequence of culture according to Thomsen represents three ages : Stone, Bronze and Iron. This system was first applied to the collection in the National Museum at Copenhagen and was soon accepted throughout the world.

#### *Chronology*

The importance of Chronology in Prehistory is undeniable. Ordinarily days, months or even years are used as units for the time scale; but in Prehistoric Chronology a large number of years are taken together as units of the time scale.

These time scales are also considered as approximates and vary according to the opinion of different scientists. But these differences do not detract from the validity of prehistoric chronology.

### *Stratigraphy*

The prehistoric chronology is mainly based on stratigraphy. By strata, we mean, the formation of layers on the earth's surface. A layer contains deposits of the age when it was formed. Each layer again is superimposed by other layers of the succeeding periods and relics of that period may be found on each layer. The formation of these layers may occur in valley and loess deposits, in rock shelters and caves and in prehistoric camps and dwelling sites. The determination of the age of a particular culture by the study of the different layers is known as *stratigraphy*.

### *Classes of Rocks*

Rock, in geological sense, signifies all kinds of natural stone, whether soft or hard and so sand and clay are regarded as rocks as much as limestone or granite. There are two classes of rocks—stratified and unstratified. Stratified rocks lie in layers and may be seen on the sides of a railway cutting or in a quarry.

### *Formation of Rocks*

When a river flows along, it carries with it, sand, mud, and other substances which dissolve during its course. But as soon as it enters the sea or a lake its current is checked and the substances are deposited in layers, as may be seen on the land after a flood. The sand being the heaviest of the substances is deposited first and in course of time forms into *sandstone*. The mud when deposited forms into beds of mud which when hardened is known as *Shale*. The common examples of stratified rocks are *sandstone, limestone, chalk, coral, rock-salt, peat, coal, gypsum* etc.

Unstratified rocks do not show any trace of layers. They are produced by the action of heat and are generally glassy or crystalline in appearance. Some have been ejected from volcanoes as lava and volcanic ashes, while others have cooled and solidified under great pressure beneath the surface, such as *granites* of various kinds.

Another class of rock known as *Metamorphic Rocks* is found in layers like stratified rocks and is more or less crystalline in appearance like unstratified rocks. They are stratified rocks altered by heat, pressure or chemical action into a crystalline structure. Common examples are *marble*,

which is crystallised limestone, *quartzite* or crystallised sandstone and *slate*, which is hardened shale.

### *Implements of early Man*

Earliest remains of human artefacts as discovered from different Palaeolithic sites are made of stones. These stones were flaked in such a way that they served the purpose of implements of early Man. There are various kinds of stones but only some of them were used for their purpose such as flints, quartzite etc. Flint is a varying mixture of crystalline and amorphous silica. It is a very brittle substance and can be easily fractured for the purpose of making tools.

### *Different Methods of Making Implements*

Three different methods were used by the primitive man for making their tools :

(1) *By percussion*—The most common method of making an implement from stones is by percussion, that is, by the striking of one nodule to the other. By this way flakes are taken out and a definite shape is given to the implement. At the time of taking out flakes we find, in one of the stones a swelling and in the other a depression. "The swelling is known as 'the cone of percussion'

and the hollow as the 'negative cone of percussion'. It is only under exceptional circumstances that this swelling resolves itself into the two cones. The point of impact is often surrounded by concentric curves that cover the bulb of percussion. These correspond to the ripples in water when a stone is thrown in, the cone of percussion being the place where the stone strikes the water. They are known as ripple marks, and it should be noted that the point of impact of the blow must necessarily be on the concave side of these ripple marks. Sometimes lines radiating from the point of impact cut through the ripple marks, these lines are called fissures. It occasionally happens that a small flat scar is observable on the cone of percussion due to the removal of a small flake known as *eraillure*". After the preliminary flaking, trimming and retouching are done to give the implement a definite shape.

(2) *Thermal Fracture*—Changes in temperature are also responsible for the fracture of flints. These fractures can be easily recognised from their surfaces which are more rounded in their appearance. "The flat fractured surface is covered with concentric ripple marks surrounding a tiny knob in the case of fracture by cold, and a small broken surface in the case of fracture by heat".



(3) *Pressure Flaking*—Flakings can also be made by pressure. "If pressure is applied at a given point along an edge flakes are actually removed; where a large flake is taken off a bulb of pressure is produced, flatter though similar in nature to a bulb of percussion". Pressure flaking is still used among some primitive peoples and the men of the Solutrean and the Neolithic age also used this type of flaking.

### *The Ice Age*

The mountain sides are often covered with forests to a considerable height; above this and higher still snow remains throughout the year. The lowest limit at which the snow remains throughout the year is known as the snow-line. The height of the snow-line varies with the latitude. At the Equator it is about 16,000 feet, on the Alps about 9,000 feet and in Lapland about 3,000 feet.

Above the snow-line where the snow accumulates, the great pressure of the upper layers presses the crystals of the lower layers so closely together that a compact mass of ice is formed. The heat of the sun assists the melting of the surface snow and in this way charging the mass underneath with water, which freezes at night. Each

winter brings fresh snow which is in turn converted into ice. The enormous pressure from the snow-fields behind and the force of gravity cause the mass to move slowly down the valley, thus forming a glacier or ice-river. A glacier moves quicker in summer than in the winter and more rapidly in the middle and top than at the sides and bottom.

Dr. Penck has established four glacial periods and three inter-glacial periods for Europe. The four glacial periods are : Gunz, Mindel, Riss, Wurm (the latest). Alternating with each of these periods there were warm inter-glacial periods; they are the Gunz-Mindel between the Gunz and the Mindel glaciations, then the Mindel-Riss between the Mindel and the Riss glaciations, and the Riss-Wurm between the Riss and the Wurm glaciations.

When a glacier flows down the mountain side, it forms a U-shaped channel for itself leaving no spurs on the sides of the valley as a river does. These U-shaped valleys are the remnants of past glaciations.

*Moraines*—When a glacier moves forward, rocks and stones loosened by the frosts of winter are deposited on its sides; and then carried down

the valley and finally deposited at the end of the glacier. These masses of debris are known as moraines.

### *Eoliths*

The artefacts which are supposed to have been made by the human agency in the Tertiary epoch are placed in the Eolithic Period and are known as Eoliths. But there are great controversies as to the real existence of Tertiary Man. Abbe Bourgeois collected a large number of specimens of artefacts between 1860—70 from Thenay, a village south of Orleans and read a paper about these specimens at the Congress of Paris, 1867. He suggested these specimens as man-made but he was opposed by Virchow and others. Carlo Ribeiro collected a large number of specimens of suggested human handiwork from the Upper Miocene beds at Otta, near Madrid. And again there was a controversy among the Scientists. In 1905 M. Boule published his famous article on the origin of Eoliths. His main contention was that definite chippings on these specimens were due to stream action. Breuil in another paper in 1910 suggested that the chippings seen on the Eoliths were simply made by pressure due to the movement of the overlying

strata. In the same year Mr. R. Moir discovered several implements from the bottom deposits of a pit near Ipswich. These objects were supposed by competent authorities as implements and a new tool 'like the keel of an upturned boat' was recognised and called *rostrocarinate*. Although some of the objects are regarded as doubtful specimens of human manufacture still fresh finds are numerically sufficient enough to affirm the existence of a Tertiary Man. Yet the scientists are still sceptic about the occurrence of man in such a remote period.

### The Cultures of the Palaeolithic Period

The Pleistocene epoch is co-extensive with the Palaeolithic Period. The Palaeolithic Period is mainly divided into Upper, Middle and Lower. The Lower Palaeolithic is again divided into Pre-chellean, Chellean and Acheulean. In the Middle Palaeolithic there is only one culture-stage—Mousterian. The Upper Palaeolithic is also divided into Aurignacian, Solutrean and Magdalenian. Two more culture-stages have recently been added by Abbe Breuil—the Clactonian between the Chellean and the Acheulean and the Levalloisian between the Acheulean and the Mousterian.

CULTURE PHASES OF THE PALAEOLITHIC PERIOD OR  
OLD STONE AGE.

Lower.	Pre-Chellean	Crude knives, scrapers. Workmanship very crude and distinctive types lack- ing.			The Piltdown Man, The Heidelberg Man, The Pekin Man.
	Chellean	Coup-de-poing, crude scrapers, points, etc. Flaking, retouching and trimming.			
	Acheulean	Twisted coup-de-poing, knives, awls, etc. Refinement of the preced- ing culture.			
Middle.	Mousterian	Scrapers and points domi- nant type. Awl, discs, gravers, Audi point peculiar to this cul- ture, etc.			Neanderthal Race.
Upper.	Aurignacian	Introduction of bone imple- ments for the first time— awls, needles, lance-points etc., stone implements of bewildering variety. Engravings and figures pro- duced for the first time.			Cro-Magnon Race.
	Solutrean	Lower	Laurel-leaf blades.	Pressure flaking	
		Upper	Willow-leaf blades.	Bone imple- ments such as needles, dart- throwers, etc.	
	Magdalenian	Parrot beak graver. Bone implements—harpoons, javelins, lance-points, etc., Cave art.			



### *The Pre-Chellean Culture*

Implements of Pre-Chellean time are crude coup-de-poing and rough stone picks. The workmanship is also very crude and distinctive types are lacking. Some crude knives and scrapers have also been found. These implements are found in Cromer forest bed in Norfolk, England and at Saint Acheul (Somme) in north-east France.

### *The Chellean Culture*

The Chellean implements are of the same type as the Pre-Chellean implements except that they are better made than the Pre-Chellean. The characteristic implement of this period is known as *hand-axe* in English, *coup-de-poing* in French and *faustkeil* in German. The handaxes are chipped on both faces, pointed at one end, rounded at the other and the edges are uneven. There are several varieties of this implement : long, rounded, pointed, almond-shaped etc. Some crude scrapers, points and awls are also found in this period.

The name of this culture is given from the type-station Chelles which is on the east of Paris, France. Chellean implements have been found in the gravels and valley terraces in various parts of the old world including the Thames, the Somme,

the Nile and the Euphrates. The Implements are associated with warm fauna.



PALÆOLITHIC TOOLS.

### *The Acheulean Culture*

The implements of the Acheulean culture are simply a refinement of the preceding culture. The implements are becoming more regular in their shapes and the edges are more even. The twisted coup-de-poing in which the pointed end of the tool is twisted slightly from the butt-end is a typical implement of this culture. The oval almond-shaped coup-de-poing, knives, awls and fine triangular coup-de-poing in the shape of a lance-point are also found during this period. These implements are associated with a cold fauna. Several Acheulean sites have been found in the ancient loess of the river terrace at Saint Acheul (Somme) from which the name of the culture is given.

The human remains which were found during the Lower Palaeolithic Period are the fragmentary remains of the lower jaw from Heidelberg, the Piltdown remains and perhaps also those recently discovered at Chou Kou Tien, near Peking.

### *The Mousterian Culture*

This culture is practically a continuation of the Lower Palaeolithic though it is referred to as the Middle Palaeolithic Period. This culture is

found in two places Krapina and Taubach accompanying a warm fauna.

According to some the Chellean culture in France developed into the Acheulean but in Germany the Chellean culture developed into the Mousterian. It may be pointed out at this stage that the Acheulean culture flourished in France and it is practically absent in Germany. In the upper levels of the Mousterian the hand-axe of the Lower Palaeolithic persisted. But the scrapers and points of the early cultures become the dominant type of this culture. Other implements such as awls, discs, gravers, notched tools and certain curved points found at Audi peculiar to this culture are also found during this period.

The race which is responsible for this culture is known as the *Neanderthal Race*. Several skeletons of this race were unearthed from different countries and this is one of the most flourishing races of the Prehistoric times of which we have sufficient information.

### *The Aurignacian Culture*

The climate of the Upper Palaeolithic Period was very cold throughout and the remains of stag and reindeer are common. The industry of this period is quite different from the Mousterian and

tools of bewildering variety are becoming common. No true bone industry was found during the Middle Palaeolithic Period, on the contrary in the Aurignacian the bone industry became regular. The implements were awls, needles, lance-points etc. The implements though crude in manufacture during this culture flourished in the Magdalenian culture. During this period stone industry also developed to a great extent. The technique of making flint implements is different from the earlier cultures. The *Audi points* of the previous culture developed into finely-made *Chatelperron point* which in turn developed into *La Gravette point*. Instead of small semi-circular flaking of the earlier cultures, the method of parallel flaking was introduced. The stone implements of this culture are Chatelperron points, Gravette points, Font Robert points, gravers, beaked scrapers, scratchers, knives etc. In the Middle Palaeolithic Period we do not find the presence of any decoration or any patterns of art; on the other hand with the rise of the bone industry in the Aurignacian times, the artistic sense of the people developed and decorations on bones were becoming regular.

This culture took its name from the cave of Aurignac, France, where a large number of implements of this culture was found. The race



who is responsible for the Upper Palaeolithic Period is known as the *Cro-Magnon Race* and the skeleton remains of this race were found at the rock shelter of Cro-Magnon (Dordgne). This Race probably came to France in the course of their migration from North Africa.

### *The Solutrean Culture*

This culture is characterised by pressure flaking. The laurel-leaf and the willow-leaf blades are the typical implements of the Lower and Upper Solutrean cultures respectively. The laurel-leaf blades are chipped on both faces and are remarkably thin. The willow-leaf blades are smaller in size than the laurel-leaf blades and possess a single lateral notch at the base. Some of them are retouched on one side and in others both sides are retouched. The technique of chipping flint implments reached its culmination during this period. The bone industry which had begun in the Aurignacian persisted during this period and needles of bone or ivory, dart-thrower of reindeer and specially needle with an eye appeared.

The name of this culture was taken from the prehistoric site of Solutre, near Macon, France.

### *The Magdalenian Culture*

In this culture no new stone industry developed except the parrot beak graver which is the characteristic stone implement of this culture. The willow-leaf and the laurel-leaf blades of the previous culture were absent during this period. The microlithic industry which began in the Aurignacian times persisted throughout the Solutrean and the Magdalenian. Bone industry developed to a great extent and harpoons (with single and double row of barbs), javelins and lance-points became common.

The culture took its name from the pre-historic site of La Madelene, France.

### *The Cave Art*

The decorations on bone and stone implements by Aurignacian and Magdalenian Man made us think that the Palaeolithic Man had a sense of art. Francois Mayor was the discoverer of some specimens of this art from a cave at Le Veyrier, near Geneva in 1833 where he found an engraved baton of reindeer horn. The importance of the discovery was not understood at the time. But in 1860 Lartet discovered a bear engraved on a piece of reindeer from the cave of Massat and was able to fix the date of the cave art. After

this he also discovered several sites of cave art in France which confirmed the theory of its existence in the Upper Palaeolithic Period.

The first appearance of the cave art dates back to the Aurignacian times but it continued through Solutrean to the end of the Magdalenian times.

The cave art can be divided into two main groups :—

- (a) that which is found engraved on the walls of natural caves ;
- (b) that which is drawn on bone and stone in the cave deposits, accompanied by dateable stone implements.

The cave artists were experts not only in the use of bone, stone, horn and ivory but also in the use of clay. The drawings of animal figures done on the cavern floors with finger-tips or pointed sticks still bear ample testimony to their knowledge of Art. The use of colour in painting was not unknown to them, and the polychrome painting of a bison of that period in the cave of Altamira still reckoned as one of the masterpieces of all ages. The engravings in all cases were probably executed by graving tools of different varieties which were manufactured at that time.

Both animate and inanimate objects attracted the attention of the cave artists ; but animal figures outnumbered all other objects in their drawings. The following animals are commonly found : bison (*Bos priscus*), horse (*Equus caballus*), reindeer (*Cervus tarandus*), elephant (*Elephas antiquus*), rhinoceros (*tichorhinus*), bear (*Ursus spelaeus* and *arctos*) etc.

Birds and fishes were not greatly favoured and the reptilian figures were rare and the same may be said of invertebrates. The inanimate world was represented by club-shaped and tent-shaped figures, circles, chevrons, spirals, triangles, lozenges etc. Plantlike forms were also rare. Human figures were always very poor and the impressions of hands in colour were also found on the walls of the caves.

The cave artists were probably hunters and so the game animals occur much more frequently in their drawings than any other objects. Most of these drawings are supposed to be prayers for the increase of the species. They had not only a special liking for some of the species such as horse, reindeer etc. but also seem to have a predilection for the female of the species.

CULTURE PHASES OF THE MESOLITHIC PERIOD OR  
MIDDLE STONE AGE.

Azilian	Bones of stag but the bones of reindeer absent. Stone implements—blades of flint, disc-shaped scrapers, knives, painted pebbles, etc.
Tardenoisian	Painted pebbles absent, microlithic industry became predominant.
Maglemosean	Stone implements—microliths, scrapers, picks etc. Typical bone implement harpoon with barbs on one side.
Asturian	Closely related to the Shell-Heap Phase. Typical stone implements—picks and hammer stones, Bone borers etc.
Shell-Heap	Stone implements—transverse-edge arrow-head and pick. Bone implements—awls, chisels from stag's antler Crude pottery cylindrical in shape.
Campignian	Campignian axe, cores, flakes, picks etc. Crude pottery. Land Habitation marked by hut pits; fossil remains of horse, stag, ox etc.

### Mesolithic Period

The transition period lying between the Palaeolithic and Neolithic civilisations is known as the Mesolithic Period. It has been subdivided into a number of phases. "In parts of central

and western Europe the term Azilian is given to the Lower Mesolithic and Tardenoisian to the Upper Mesolithic. In northern Spain the term Asturian is applied to the Upper Mesolithic. The Maglemosean of Denmark probably represents the earliest phase of the Mesolithic in that region. The final stages of the Mesolithic now include the Shell-heap and Campignian cultures previously assigned to the Neolithic Period."

### *The Azilian Phase in Western Europe*

The first transitional culture was discovered by Eduard Piette by his excavation at Mas d'Azil, France. Here he found nine different culture-levels. The first five of them were Palaeolithic and the last three were Neolithic but the sixth did not fit into either. To this culture he gave the name Azilian. This deposit contained plentiful bones of stags but the bones of reindeer were absent. The stone industry consisted of small blades of flint, small disc-shaped scrapers, knives, painted pebbles etc. The flat harpoons of stag-horn with perforated base were also found in this deposit.

### *The Tardenoisian Phase in Western Europe*

In the Tardenoisian culture painted pebbles were absent and the microlithic industry became



predominant. Various geometrical types such as triangles, trapeziums, lozenges etc. were found and these were employed as an armature set longitudinally and bilaterally into bone points. Scratchers and small blades like chatelperron points were also unearthed during this phase.

### *The Maglemosean Phase in Scandinavia*

The type station of the Maglemosean culture is in the Maglemose in the west of the island of Zealand from which the name of the phase is given. This culture is commonly found in Denmark and on the coasts of the Baltic. Both stone and bone industry were unearthed during this phase. The stone industry included micro-liths, scrapers, picks etc. The typical bone implement was the harpoon with barbs on one side and other implements such as awls, needles, fish-hooks etc. were also found.

### *The Asturian Phase in Spain*

The Asturian culture has recently been recognised and has taken its name from the province of Asturias, Spain. It is probably a late phase of the Mesolithic and closely related to the Shell-heap phase. The remains of the culture are found in kitchen middens and are composed of sea shells carried into the caves. The stone

industry consists of a typical pick made by roughly pointing an oval river pebble, and smooth round pebbles used as hammer stones etc. The bone industry consists of bone borers and some stag tines pierced with a hole etc. The Asturian culture is younger than the Azilian and the layers containing Asturian tools are invariably found on the top of the Azilian.

*The Shell-Heap Phase or Kitchen Middens*

The Shell-heap and Campignian were formerly described as belonging to the Neolithic Period because the use of some kind of pottery and the domestication of dog were known to them. But it is very difficult to distinguish between the Maglemosean and Kitchen Midden cultures from their industries.

The Shell-heap or Kitchen Midden consisted of masses of shell fish and other kitchen refuse that had been left by the people of that time. The sites are generally found on and near the sea-shores. The stone implements found in these sites are typical transverse-edge arrow-head and pick. Polished stone implements are absent. The bone industry consisted of awls and chisels made from stag's antler. A crude-form pottery commonly cylindrical in shape with rounded or pointed base appeared during this phase.

### *The Campignian Phase in France*

The Campignian culture took its name from the type station of Campigny, France. The site consists of a number of land habitations in the form of hut pits (*fonds de cabanes*). The pits are oval in shape and vary in size, some of them are 5 yards in diameter. The stone industry includes campignian axe, a typical specimen of the period, rough awls, picks, transverse-edge arrow heads, scrapers, cores, flakes etc. Crude pottery was also found during this phase. The fragmentary remains of fauna at Campigny are indentified as belonging to horse, ox and stag etc. From the charcoal two kinds of trees such as the oak and the ash are determined.

Mesolithic culture is perhaps unprogressive from the point of view of the art and industry. But with the Neolithic civilisation the people changed their outlook suddenly and rapid progress was made.

### Neolithic Period

Rapid progress had been made by man in the Neolithic Period. Uptill the Neolithic, man had been a food gatherer but with the Neolithic he became a food producer though hunting and fishing of the early periods were not discarded. With

new inventions and discoveries during this age he was able to utilise the supply of raw materials and at the same time made profound changes in his mode of life. Factors responsible for this profound change are : the practice of agriculture ; the manufacture of pottery ; the domestication of animals ; the grinding and polishing of stone implements for a definite shape.

### *Agriculture*

In the Palaeolithic Period men had to live by hunting, so it was very difficult for them to live together in a particular site for a long time, because as soon as the games were sparse in that area they had to go elsewhere in search of the games. In the Neolithic Period with the invention of agriculture it was possible for them to live in a particular site for a long time and community life developed. This change of life from a small nomadic band to that of a thickly populated village necessitated a well-regulated community life and in this way flourishing villages came into existence during this age.

### *The Domestication of Animals*

There were considerable differences of opinion among the scientists as to the period when the domestication of animals began. Some

are of opinion that the first domestication of animals began in the Upper Palaeolithic Period (Magdalenian times). Another view is that dog had come to live with man in Azilian times as the remains of that animal have been discovered in several sites.

The domestication of animals first took place somewhere in the East outside Europe and this had a close connection with the climatic changes of that period. Dog was probably the first animal to be domesticated and its remains were found with man from Azilian times. The remains of sheep, goat, wild ox, horse and other animals suggest that they were domesticated during the Neolithic Period.

### *Pottery*

Though some people have claimed that Palaeolithic men had a knowledge of making pots from the presence of fragments of burning clay in some Palaeolithic sites, yet it is very difficult to conclude whether these burnt pieces were really fragments of some pots which were in use at that time.

In the Palaeolithic Period man had only fragments of skulls or other objects as their container but with the Neolithic Period hand-made pottery made its appearance and their use became regular.

The making of pottery is a complicated process because if clay is alone used for pot-making



NEOLITHIC TOOLS AND POTTERY.



it may crack, when fired. So some kind of mixing is necessary to make it porous. The materials which were generally used in early times were sand or other micaceous matter to protect them from being cracked, when burnt. In some cases charcoals made from burnt wood or bones were mixed with clay and the pots produced, when fired, had a surface that could be easily burnished.

Hand-made pottery was first introduced and later on wheel was invented to facilitate the making of pots. Various types of pots were found in different areas during this age and decorations on these pots were also frequent.

Pottery of Neolithic Europe may be classified into two varieties—banded ware and corded ware. To these a third variety may be added known as calyciform ware.

### *The Grinding and Polishing of Stone Tools*

The Palaeolithic men shaped their implements by taking out flakes or by chipping or trimming but in the Neolithic Period a new method was introduced, that is, by grinding and polishing. This process took a long time to shape their tools, so they had not discarded the earlier methods of making tools. This is the reason why both types of implements have been found during this age.

The typical implements of this age are celts, adges, picks, arrow-heads, hammer stones, ring stones, awls, battle axes etc.

### *Habitations*

Neolithic habitations are of three kinds—land habitation, pile dwelling and cave homes.

(1) *Land Habitation*—Huts of different types came into use during this age. The floors consisted of dried mud or compressed loam and the walls and the roofs were composed of poles, branches and coatings of clay. Huts were of different types such as rectangular, round etc. and were generally congregated together to form definite villages. In these prehistoric villages a food pit for one house or group of houses was ordinarily found. This generally consists of a funnel-shaped shaft sometimes two or three yards deep in which provisions were probably stored. A typical example of this type is a Belgian *fond de cabane*.

(2) *Pile Dwelling*—The building of habitations over the water developed before the close of the Neolithic Period and persisted through the Bronze and the Iron Age. They were built for safety both from attacks of hostile human beings as well as from wild animals and at the same

time affording easy means of refuse disposal. They are common in Switzerland round Lake Neuchatel, the Lake of Lucerne and the Lake of Constance and also along the Julian Alps. These pile dwellings rested on logs of wood driven into the ground along the shallow edge of the lake and on these posts rested the cross beams, forming a platform on which the houses were built.

(3) *Cave Homes*—Caves were the natural shelters of men from Palaeolithic Period and the Neolithic folk also utilised these natural caves for their use. In French and Spanish caves it is very common to find a layer of Neolithic or Early Metal Age at the top.

### *Neolithic Art*

The wonderful Palaeolithic Art disappeared with the advent of the Mesolithic Period and naturalistic art became rare. In this age pottery is often beautifully engraved with complicated designs in various techniques and painting on pots was also practised.

### *Megalithic Monuments*

The construction of stone monuments is known as *Megaliths*. There are various types of it. They are as follows :—

(a) The simplest type of megalithic monument is the *Menhir*. It consists of a single slab

of stone sets up at or near a burial spot. It may be of small or of great height. The monoliths of great height are found near Carnac in Brittany. The erection of monolith is also common in Assam and South India.

(b) *Cromlech* or *Stone Circle*—Stone circle of different size surrounding a *menhir* is known as *Cromlech*. When rows of alleys are formed by long lines of small *menhirs*, they are known as *alignments*. Best examples of *cromlechs* and *alignments* are found at Carnac in Brittany.

(c) *Dolmen*—The simplest type of dolmen consists of three flat stones set on end so as to form a hollow square and is covered by a stone placed horizontally. The entrance to it was sometimes partially closed by a smaller stone. Under the lid within the chamber the body or bodies and funeral furnitures were buried. *Dolmens* are of various types and originally they were covered with earth.

(d) *Passage Graves*—The elaborated and complicated types of *dolmen* are known as *Passage Graves*. "They consist of a chamber composed of large upright slabs, covered by a lid or cap-stone; from this chamber there emerges a passage, varying in length; itself composed of upright slabs roofed with flagstones; the whole covered

with a tumulus or earth mound. Between the sepulchral chamber and the passage there is sometimes placed a stone slab with a hole in it, large enough to admit a body. Such slabs are called port-hole entrances."

(e) *The Stone Kist*—The degenerated form of *Passage Grave* is known as *Stone Kist*. In it the chamber had disappeared and the end of the passage acted as the burning place.

The origin of the idea of building megalithic monuments is a matter of great controversy. Some authorities trace their origin to Egypt which afterwards diffused all over the world from that centre; others are of opinion that they represent a survival of the Palaeolithic cave burials. None of these theories are accepted in general. But this much is certain that they point to a definite cult of the dead and a desire to protect bodies from the ravages of the wild beasts.

The megalithic monuments have a wide distribution. They are found in Portugal, South Spain, North-West Africa, Central Europe, Northern and Western France, Egypt and India.

## CHAPTER V

### ETHNOLOGY

#### *Race*

Race signifies a group of people who have certain well-marked characters in common. But how many characters will be taken into account is only a matter of individual opinion. If all dark-skinned peoples are grouped as Black Race then it includes the long-headed and the broad-headed groups and the term 'Race' may be applied to any one of these groups. So it seems that the term 'Race' is very vague and its use for a particular group is also uncertain.

It is very difficult to get a pure race at the present time. Though according to some the Andamanese, the Bushmen and the Jungle Veddas are the only representatives of the pure race.

#### *Three Great Races*

At present are recognised three great races of man viz. the White Race, the Yellow-Brown Race and the Black Race. These three races have occupied the three continents of the Old World and have also gone over into the New World.



### *Development of Races*

The development of a race depends upon three factors—isolation, inbreeding and mixed breeding. After isolation, adaptations occur from climatic and geographic conditions. In the case of pigmentation it is variable, and races with greater pigmentation are able to bear the intense heat of the tropical regions. In the cold, moist climate least pigmentation is needed. Nose form also varies in different climates. Broad nose is associated with the hot, moist climate and narrow nose with the cold dry climate.

### *Chief Forms of Dispersal*

There are three chief forms of dispersal. First, by spreading movement in large numbers from an overpopulated centre. Second, by invasion of adjoining territories and in this way removed far away from the original centre. Third, by migration of individuals or groups.

### *Criteria of Classification*

Three factors are necessary for the classification of a race—culture, language and physical characteristics. Every people has a culture of its own and this also depends upon their mode of life which is largely an expression of geographical conditions. Language is also a branch of culture

and is an important factor in the classification of a race. The physical characters are by far the most important factor in classifying a race. Some of the main physical characters are as follows :—

### *Hair*

Hair may be plentiful or scanty over the body. In the Yellow-Brown peoples body hair is practically absent. In the White races living from the Baltic through Persia and India to Australia hair is more or less heavy over the entire body. The scalp hair may be classified into *Leiotrichy*, *cymotrichy* and *Ulotrichy*.

*Leiotrichy* or straight hair is common amongst the Asiatic *Xanthoderms* (Chinese, Japanese etc.). *Cymotrichy* or smooth, wavy and curly hair is the characteristic of Western Asia, Europe, India etc. *Ulotrichy* or woolly or frizly hair is found among the Papuans, Melanesians, Negritos, Bushmen etc.

### *Skin Colour*

Some authorities have given an important place to the colour of the skin and the human races are classified by them on this basis. The skin-colour may be grouped as follows :—

- (1) *Leucodermi* or white-skinned peoples—  
The colour varies from pinkish-white to tawny-white or light brown.

- (2) Brown-skinned peoples varying from light brown to dark brown.
- (3) Xanthodermi or yellow-skinned peoples  
—Varying tints from light to brown always with a yellowish tinge.
- (4) Melanodermi or black-skinned peoples  
—Varying from a dark chocolate brown to black.

### *Stature*

Pygmy—below  $58\frac{1}{4}$  inches

Short— $58\frac{1}{4}$  to  $62\frac{1}{4}$  in.

Medium— $62\frac{1}{4}$  to 66 in.

Tall—66 to  $67\frac{3}{4}$  in.

Very tall above  $67\frac{3}{4}$  in.

When the stature is below  $58\frac{1}{4}$  inches it is called as pygmy; when it is between  $58\frac{1}{4}$  and  $64\frac{1}{4}$  inches it is known as short; when it is between  $62\frac{1}{4}$  and 66 inches it is medium; when it is between 66 and  $67\frac{3}{4}$  inches it is tall and when it is above  $67\frac{3}{4}$  inches it is designated as very tall.

### *Head*

Form of the head is an important character. From our visual observation we find different shapes of heads such as long, narrow or broad. For the better understanding of these forms

*cephalic index* is introduced. This index is the ratio of the breadth of the skull or of the head to its length, the length is taken as 100. When the ratio falls below 77 it is termed as *dolichocephalic* or long head; when it is between 77 and 82 it is *mesocephalic* or medium head and when it exceeds 82 it is *brachycephalic* or broad head. In the case of length-breadth index of a skull we shall term it *cranial index* and in the case of the head of a living man we shall term it *cephalic index*.

### *Face*

The face may be prognathous or orthognathous. If the lower part of the face projects considerably it is technically known as *prognathous* and when there is no projection of the face it is *orthognathous*. A correlation between the shape of the head and that of the face is made, thus dolichocephalic head with narrow face is known as *leptoprosopy* and brachycephalic head with broad faces as *chamaeprosopy* (or *euryprosopy*). There are some exceptions to this general rule and they are known as disharmonic types. Thus a longhead with broad face is found among the Eskimos while a broad head with narrow face occurs among the French Basques.

### Nose

The nose form is divided into three groups, platyrrhine, mesorrhine and leptorrhine according to the nasal index. An index is formed to determine the relation of the breadth to the length of the nose, the latter being taken as 100. When the breadth is above 85 per cent. of the length it is *platyrrhine*; when it is between 85 and 70, it is *mesorrhine* and when it is less than 70, it is *leptorrhine*.

### Eye

Eye characters also differ in different races. The slit or opening of the eye may be horizontal or oblique. Horizontal eyes are common in S. Europe, North Africa and in the Near East. In the Xanthodermous Asiatics the fissure is generally oblique.

Epicanthic fold or Mongolian fold is a fold of skin covering the inner angle of the eye. This is commonly found among the Mongoloid peoples but is also occasionally met with among the leucoderms and sometimes among the Negroes.

The colour of the iris varies greatly in different races. Blue among the true Nordics is at one extreme and dark-brown and shades of black

among the Xanthoderms and the Melanoderms at the other.

Besides the physical characters there are other chemical, functional, mental and pathological differences between the various groups of mankind.

### *Geographical Distribution of the Human Races*

Hrdlicka has classified the whole mankind into three great Races—White, Yellow-Brown and Black. Each of the races are again divided into several subraces. They are as follows ;—

#### Sub-Races of the White Race

##### *The Alpine Race*

The Alpine Race is of medium stature with a tendency toward a heavy build. The complexion is intermediate between dark and fair. The hair is chestnut brown or black and straight to wavy. The head is broad and rather high. The nose is often broad and frequently concave. The eyes are generally dark-brown or hazel-grey.

The Alpine Race has mixed with the different races of Europe and mostly represents the people of Central Europe, Russia and Balkan Peninsula. They are also found in the Cevennes, Ardennes, Alps, Czecho-Slovakia etc.



*The Nordic Race*

The Nordic Race is of tall stature, the males being on the average 1'73m. (68 in.). The complexion is very fair reddish-white rather than ivory white. The head is long and narrow and the occiput projects markedly. The supra-orbital ridges are moderately strong. The face is long and narrow. The nose is usually, straight, narrow and prominent. The hair is soft and light in colour and from straight to slightly wavy. The eyes are light in colour ranging from blue to grey.

The Nordic Race is found in north and north-west of Europe, the coastal region of the North Sea and the Baltic. It is also found in certain parts of Sweden, Scotland and Eastern Scandinavia. In Eastern Scandinavia it is purest of all but in other regions it is more or less diluted with other races.

*The Mediterranean Race*

The Mediterranean Race is of medium stature and of slender build. The skin-colour is tawny white and when unexposed become ivory white with rosy tints. The head is long and narrow and the nose is straight but rather broad. The hair is black and wavy or even curly. The eyes are generally from dark-brown to very dark.

The Mediterranean Race is found throughout the Mediterranean coasts from the Azores and Canaries to the Levant. They are also found in parts of S. Wales and Cornwall, along the west coast of Scotland, in parts of Persia, India and other countries.

### *The Australian Race*

The Australian Race is by origin distantly related to the Whites, so they are classed as one of the Sub-Races of the White Race though they are of black complexion.

The Australian Race is of medium stature or less. They have plenty of hair on the face and the body. The hair is generally curly though wavy and sometimes straight hair is also seen. The head is long and narrow. The nose is platyrrhine and depressed at the root. The forehead is low and receding and the brow-ridges are prominent resembling those of the Neanderthal. Prognathism is also common among them.

They are found in Australia.

### *The Hamitic Race*

The Hamitic Race is of medium stature about 1.65m. (65 in.) or less and of slender build. The skin-colour varies from reddish-brown to brown-black. The hair is dark-brown to black

and wavy to curly. The head is long and the nose is usually prominent. Lips are usually thin and the chin is pointed.

The purer groups are the Galla or Oromo, the Beja etc. They are found in Egypt, N. Africa, Somali and Abyssinia.

### *The Semitic Race*

The Semites are of medium stature and sometimes tall. The skin-colour is generally white though dusky and brown colour are also found. The eyes are dark and the face is long. The head is dolichocephalic to mesocephalic and the nose is straight, narrow and convex.

They are at present found in Arabia, Mesopotamia, N. and E. Africa, Persia, Asia Minor, Caucasus and scattered in small numbers over Europe, America and in the Pacific Islands. The Southern Semites resemble the Mediterranean and the Hamitic Races.

### Sub-Races of the Yellow-Brown Race

#### *The Mongolian Race*

The stature of the Mongolian Race ranges between low and medium. The skin-colour varies from yellowish to brown with occasional black. The hair is coarse, straight and black but practically absent on face and body. The head is broad

and the face is rather flat. The nose is medium with broad nostrils. The cheek-bones are prominent. The eyes are dark-brown in colour and are often oblique. The epicanthic folds are often present.

Their present habitat is Central Asia, North-east Asia and Japan and are also found in other countries.

### *The American Indians*

The stature of the American Indians ranges from short to tall. The skin-colour is of varying shades of yellowish-brown. The hair is coarse, straight and black. The head is broad and the nose is straight and concave. The cheek-bones are prominent and the eyeslits are sometimes oblique.

They are found in North America, Central America and South America.

### *The Malay Race*

The Malay Race is medium to short in stature; the skin-colour varies from yellowish to brown; the head is broad and the cheek-bones are prominent. The nose is short with broad nostrils. The eyes are dark-brown in colour and often oblique with epicanthic fold. The face is generally prognathous.

They are at present found in the south-east of Asia and have greatly mixed with the Negritos, the Polynesians and the Melanesians.

### Sub-Races of the Black Race

#### *The Negro Race*

The Negroes are of medium to tall in stature. The head is long and the forehead is often bulging out. The skin-colour varies from dark-brown to black. The hair is black and frizzly or woolly. The nose is broad and flat and the lips are often thick and everted. They are often prognathous. The typical Negroes are generally coarse in face and body and the head is medium.

There are two types of the Negro, one with unusually long arms and the other with unusually long legs. They are generally found in Guinea coast and tropical Africa.

#### *The Negrillo and the Negrito Race*

The Negrillos are of very short stature and the average is about a little over four feet. The skin-colour is black to dark rusty brown; the hair is short and woolly and face hair is usually straight. The head is medium and the nose is broad and flat. The face is prognathous and the lips are full but not everted. The trunk is short; the arms are long, but the legs are short.

They are found in Equatorial forests of Africa specially in the Congo region.

The Negritos and the Negrillos are nearly alike in bodily features ; but the former has several types due to various admixture with the adjacent peoples.

### *The Bushmen*

The Bushmen are very short in stature about five feet. They have very short hair rolled into small spirals leaving bare spaces between and the body hair is scanty. The skin-colour varies from light to brownish-yellow. The head is very small and mesocephalic (medium). The face is flat with prominent cheek-bones. The nose is flat and very broad ; the eyes are often narrow with epicanthic fold. The lips are rather thick and the earlobes are generally absent.

Their present habitat is the Kalahari desert.

Though the main groups of mankind are included in this classification yet a number of others are excluded as they do not belong to any of these divisions, for example, the mixed races of Africa, America, Europe and India etc. For this reason we have no other alternative than to designate these peoples as mixed races. We do not know any better method of classifying mankind



in which all groups can be included as we are ignorant of the causes of race differences and the extent to which a racial type is fixed; so the only way left to us is to take a large number of individual measurements considering many criteria to get an average to which we can attach the term 'Race'.

Haddon has tried to classify mankind more extensively than the previous one, on the basis of hair form though he has taken into account a large number of other characters too. He observes that there are three varieties of hair—Ulotrichy, Cymotrichy and Leiotrichy.

### ULOTRICHI

#### A. Ulotrichous People of the East

Very short, dark-skinned, meso to low brachycephalic

##### *Negrilo*

##### (a) Andamanese

Nose short depressed at the root.

Andaman Islands.

##### (b) Semang

Nose short, flattened and very broad.

Central region of Malay Peninsula  
and East Sumatra.

## (c) Aeta

Nose flat and extremely broad, (N. I. 102 or more).

Philippine Islands.

## (d) Tapiro

Nose short, medium breadth.

Western mountains of Netherlands, New Guinea ; traces of similar people elsewhere in New Guinea and probably also in parts of Melanesia.

Short or tall, dark-skinned, dolichocephalic

*Papuan*

Nose often prominent and convex, with tip often turned down, platyrrhine.

Most of New Guinea, and originally throughout Melanesia ; formerly probably in parts of Australia and certainly as a variety in Tasmania ; in the most south-easterly islands of the East Indian Archipelago.

*Melanesian*

Nose platyrrhine, sometimes straight, smaller than in the Papuan.

Admiralty Islands to New Caledonia ; Fiji ; coastal parts of New Guinea and the neighbouring islands to the east and south-east.

## B. Ulotrichous People of Africa

Very short, yellowish-skinned, mesocephalic (pygmies)

*Negrillo*

Akka, BaTwa, BaMbute etc.

Root of the nose very flat and broad.

Equatorial forests of Africa, more specially in the Congo region.

Short, yellowish-skinned, mesocephalic

*Bushman*

Nose extremely platyrrhine.

Now mainly confined to the Kalahari desert, but formerly extending over the greater part of South Africa.

*Hottentot*

Nose flat, platyrrhine.

Of Bushman stock with alien admixture, probably of very long standing, in which the characters of the first predominate.

*Korana*

Nose platyrrhine.

Orange and Vaal river valleys.

Short or tall, dark-skinned, dolichocephalic

*Negro*

Nose platyrrhine.

Guinea coast and originally tropical Africa.

*Negroid*

(a) Nilote (Eastern Sudanese)

Nose very platyrrhine.

Eastern Sudan and Upper Nile Valley.

(3) *Mediterranean*

Nose straight.

Iberian Peninsula, S. Italy, S. France,  
Grecian Islands etc.**II. Mesocephals**

A. Tawny-white complexion, black hair, medium stature

(i) *Atlanto-Mediterranean or Littoral*

North Portugal, east of the Balkan Peninsula, shores of the Bay of Biscay.

(ii) *Pyrenean*

Nose very prominent and narrow.

Across the north of Spain.

B. Fair skin and hair, tall stature

*Nordic*

Nose usually straight, narrow and prominent.

Scandinavia, northern parts of Germany, parts of Netherlands and Belgium etc.

C. Light-brown or olive skin, black hair, medium stature

*Ainu*

Nose mesorrhine, N.I. 77.

The indigenous population of Japan.

**III. Brachycephals**

Sallow or tawny skin, colour of hair variable, medium or tall

1. *Eurasiatic*(a) *Alpo-Carpathian*

Nose leptorrhine.

Central Plateau of France, Russia,  
Alps, Czecho-slovakia, etc.

(b) *Pamiri*

Nose leptorrhine.

The Pamirs and the neighbouring  
areas.

2. *Illyrio-Anatolian*(a) *Anatolian (Armenian)*

Prominent nose.

Scattered in Anatolia, Armenia;  
the ancient Hittites were typical  
members of this race.

(b) *Illyrian (Adriatic or Dinaric)*

Nose narrow, straight or convex.

The Illyrian mountain system, the  
north to south mountain system of  
the western Balkan Peninsula and of  
Greece.

3. *Prospectatores*

This stock appears to be the result of an  
early cross between Mediterraneans and  
Anatolians. Found in small numbers  
among various coastal peoples viz.,  
Salerno, Bari and other littoral parts of  
south Italy.

4. *Beaker Folk*

They are regarded as a cross between Alpines and Nordics. Nose prominent and leptorrhine.

They spread to Lombardy and to the north of the Seine, also found in the east coast of England and Scotland.

## LEIOTRICH

I. **Dolichocephals**

Brownish or reddish-yellow skin, generally tinged with red, medium stature

*Eskimo*

Nose narrow, somewhat prominent.

Arctic coast of North America, Greenland and the extreme north-east of Asia.

II. **Mesocephals**

Yellowish-brown skin, stature short, medium or tall

1. *Palaearcticus*

Straight or concave nose.

Central and western Siberia, Northern SCANDINAVIA, Finland etc.

2. *Sinicus*

Mesorrhine, mesocephalic with tendency to hypsicephaly.

China.

3. *Northern Amerind*

Straight or aquiline nose.

North American Indians of the plains



and of the Northern and Eastern Woodlands.

### III. *Brachycephals*

Skin yellowish-white to coppery-brown, stature short, medium or tall

1. *Turki*

Straight, somewhat prominent nose.

Original home, Western Central Asia ; now found in Russian Turkistan, Chinese Turkistan, Asia Minor etc.

2. *Centralis, Tungus* (Mongol)

Mesorrhine nose with low bridge and broad nostrils.

Manchuria, Gobi area, Mongolia etc.

3. *Pareoan* (Southern Mongoloid)

Nose short, flattened with broadish nostrils ; eyes often oblique with epicanthic fold.

Chinese of Hoang Ho, Further India, Indo-China, Japan etc.

4. *Polynesian*

Nose prominent, sometimes convex, most often straight ; cheek-bones fairly prominent.

From Hawii to New Zealand and from Samoa to Easter Island.

5. *Neo-Amerind*

Nose straight or concave, rarely aquiline. Amerinds of North American plateaux, Central America, and South America.

6. *Tehuelche*

Very tall stature (68 to 72 in., square face.)  
Patagonia.

7. *North-West Coast Amerind*

## (a) Northern Sub-type

Nose concave or straight rarely  
convex. ex. Tlingit, Haida etc.

## (b) Southern Sub-type

Nose very high, rather narrow, frequently convex. ex. Kwakiutl.

North-West coast of America  
from 60° N. lat. to the northern  
boundary of Washington State.

## CHAPTER VI

### RACIAL HISTORY OF INDIA

India is a vast country inhabited in its different parts by different types of people. Sir Herbert Risley in 1891, first attempted to classify the peoples of India. According to him there are seven main physical types in India.

I The Turko-Iranian type—This is represented by the Baloch, Brahui and Afghans of the Beluchistan Agency. This type is probably formed by a fusion of Turki and Persian elements. The characteristic features of the people are fair complexion, dark eyes, broad head, fine nose, medium stature and hair on face plentiful.

II. The Indo-Aryan type—This is represented by the Rajputs, Khattris and Jats of Punjab, Kashmir and Rajputana. This type closely approaches to the traditional Aryan colonists of India. The stature is mostly tall, complexion fair, eyes dark, hair on face plentiful, long head and narrow prominent nose.

III. The Scytho-Dravidian type—This is represented by the Maratha Brahmans, the Kunbis and the Coorgs of western India. This type is

probably formed by a mixture of Scythian and Dravidian elements, the former predominating in the higher groups and the latter in the lower. The head is broad, complexion fair. hair on face rather scanty, stature medium and nose moderately fine.

IV. The Aryo-Dravidian type—This is represented in its upper strata by the Hindusthani Brahman and in its lower by the Chamar and is found in the United Provinces of Agra and Oudh, in parts of Rajputana, in Behar and Ceylon.

The head is long with a tendency to medium, the complexion varies from lightish-brown to black, the nose ranges from medium to broad and the stature is below the average (5'3in. to 5'5in.).

V. The Mongolo-Dravidaian type—This is represented by the Bengal Brahmans and Kayasthas, the Muhammedans of Eastern Bengal and is found in Lower Bengal and Orissa. They are probably a blend of Dravidian and Mongoloid elements with a strain of Indo-Aryan blood in the higher groups.

The head is broad, complexion dark, hair on face usually plentiful, stature medium (5'5" to 5'7") and medium nose with tendency to broad.

VI. The Mongoloid type—This is represented by the Lepchas of Darjeeling, the Limbus, Murmis and Gurungs of Nepal, the Bodo of Assam and the Burmese.

The head is broad, complexion dark with a yellowish tinge, hair on face scanty, stature below average (5'3" to 5'5") nose fine to broad, face characteristically flat and eyelids often oblique.

VII. The Dravidian type—This type extends from Ceylon to the valley of the Ganges pervading the whole of Madras, hyderabad, the Central Provinces, most of Central India and Chota Nagpur.

In typical specimens the stature is short (below 5'3"), complexion very dark approaching black, hair plentiful with an occasional tendency to curl, eyes dark, head long, nose very broad, sometimes depressed at the root, but not so as to make the face appear flat.

The following racial elements have been recorded amongst the peoples of India in the Census Report of India, 1931.

A. "A short-statured long-headed element with high cranial vault, faintly marked supra-orbital ridges, broad, short, orthognathous face, medium lips, mesorrhine index, skin colour from light brown to dark brown, hair colour black, hair form straight to wavy, and moderate in amount on face and body. This element forms the predominant type in the greater part of the lower stratum of the population of Northern India.

B. In the western littoral and Bengal, a brachycephalic element of meidum stature with flattened occiput, high head, and receding forehead. The face is short and orthognathous, but broader then in the first type. The nose is long and "highly pitched", but often arched and convex. Skin colour varies from pale white to tawny brown. Eye colour is usually dark; hair is usually black and straight. A few light eyes and rare cases of brown hair occur in this type.

C. In Northern India a tall, long-headed, strain with long face and prominent, narrow nose. In its purest form the skin colour is rosy white, and eyes gray-blue. The hair is straight and chestnut in colour. In mixed varieties the pigmentation is darker.

In the aboriginal population :

D. A short dolichocephalic strain with marked brow ridges, broad, short face, prominent lips, small flat nose with spread alae. The hair varies from wavy to curly and the skin colour approaches black. This type is closely allied to the Veddas of Ceylon, the Tolas of Celebes, the Sakais of the Malay Peninsula, and represents a less primitive form than is found among the Australians.



E. A dark pigmy strain with spirally curved hair, remnants of which are still found among the Kadars and the Pulyans of the Perambicullan Hills but which is mostly sub-merged in India at the present time.

F. A mongoloid type along the sub-Himalayan region; brachycephalic, short, flat-nosed with alveolar prognathism. This type appears in several variants.

G. A mongoloid type with medium stature, longish head, and medium nose, but with the typical mongoloid features of face and eye. This type occurs in Assam and Northern Burma."

The classification of the Indian peoples by Giuffrida-Ruggeri has slightly been modified by Haddon, is as follows :

I. Negrito—Hair short, black or sooty in colour, with a reddish tinge, body-hair scanty or absent; skin varies from bronze to dull sooty black; stature 1485 mm., well-proportioned body and small hands; head small and brachycephalic (C. I. 83); face broad at the cheek-bones, lips full but not everted, jaws do not project; nose straight, platyrrhine, sunken at the root.

The Andamanese.

Some traces of Negrito features are shown by the Kadars of Cochin, and Dr. Hutton thinks that

some traces may be discovered among some of the Naga tribes on the N. E.

II. Pre-Dravidians (called also Australoid-Veddaic or Proto-Australoid)—Dolichocephalic, platyrrhine, dark-skinned, of short or medium stature.

(a) Vedda of Ceylon: Hair long, black, coarse, wavy or slightly curly; skin dark brown, stature short, 1533 mm. the smallest of human skulls, very dolichocranial (C. I. 70.5), forehead slightly retreating, brow-ridges often prominent, fairly broad face, orthognathous but sometimes prognathous, thin lips, pointed chin; nose depressed at root, almost platyrrhine.

(b) Jungle Tribes of South India (Kadar, Kurumba, Paniyan, Irula etc.). Very curly and even frizzly black hair among the Kadir and Paniyan, less so among the others; short stature, generally about 1575 mm. or less; dolichocephalic (C. I. 73-75); markedly platyrrhine.

(c) Jungle Tribes of Central India—medium stature Bhil, Gond, Khond etc.

(d) Tribes of Chota Nagpur (sometimes called Kolarians)—dark brown almost black skin, coarse black hair inclined to be curly and scanty beard, low medium stature—1577-1614mm. ; dolichocephalic (C.I. 74.5-76); a low narrow forehead, thick lips, nose broad and flat (N.I. 86.5-92.5). There is often a reminiscence of Mongoloid features. Munda, Kol, Ho, Korwa, Kharwar, Santal, Bhumij etc.

III. Dravidians—Hair plentiful, wavy with an occasional tendency to curl; brownish-black skin; medium stature, 1634 mm. ; dolichocephalic (C.I. 73-76); typically mesorrhine (N.I. less than 77). They have an affinity with the Mediterranean Race of Sergi, or the Brown Race of Elliot Smith.

Nayar, Nambudri, Vellala, Tiyan, Izhuvan, Badaga, Shanan, Tamil and Telegu Brahmins etc.

IV. Brachycephalic Leucoderms (Homo Indo-Europaeus brachymorphous) :

(a) The Pamiri—strongly brachycephalic (C.I. 83 to 85 or higher)—having affinity with the Wakhi, Tajik and Galcha etc. of the Pamirs. Leptorrhine, orthognathous.

Some Baloch and Pathan tribes on the North-western Frontier, such as Bandija, Chhuta, Tarin etc.

- (b) Round heads with lower brachycephaly or mesocephaly—leptorrhine, orthognathous, skin-colour pale white to tawny brown. Peoples of Bengal, Orissa, non-primitive Assam, Gujrat, and Konkan, and a considerable number of Canarese and Tamil speaking peoples.

V. Dolichocephalic Leucoderms (Homo Indo-Europaeus dolichomorphous)—

- (a) Indo-Afghan Group—dolichocephalic, leptorrhine, medium to tall stature; skin-colour rosy-white to various shades of brown; eyes sometimes gray-blue but often dark.

Afghan, Rajput, Punjabi, Sikh etc.

- (b) Indo-Iranian Group : on the border line between meso and brachycephaly, C.I. 80-82.8; N.I. 67.8-74.3; stature medium to tall (1642-1722 mm.). This type seems to have affinity with the round-headed groups but Haddon thinks, "In all essentials they

belong to the dolicho-mesocephalic series''.

- (c) Tall dolichocephalic Leucoderms—Toda.

VI. Homo Asiaticus—Xanthoderms (Mongoloid peoples) :

- (a) Homo Asiaticus Protomorphus—C.I. 75.9-80.8; N.I. 84-95; stature 1550-1635 mm.

Khasi, Bodo, Mande, Mishng Arleng etc. of Assam. They possess affinity with the Lissu, Lolo, Miaotse, Lutse etc. of Southern China.

- (b) Homo Asiaticus Tibetanus—C.I. 76.8-81.6; N.I. 67.2-78.5; stature 1570-1669 mm.

Ladakhi; Kambu, Mangor, Gurung, Murmi of Nepal; Lepcha of Darjeeling; the Eastern Tibetans belong to this group.

- (c) Homo Tibetanus Brachymorphus—C.I. 83.3-84.3; N.I. 71.7-74.1; stature 1603-1622 mm.

Limbu of Nepal (having affinity with the Changpa of Tibet.

- (d) *Homo Asiaticus Meridionalis*—C.I. 82.7-85.5; N.I. 83.6-84.5; stature 1559-1649 mm.

Chakma of Rangamati; the Burmese. This group is found in the area from Burma to Annam.

- (e) *Homo Asiaticus Centralis*—C.I. 84.3-87; N.I. 71.7-80.5; stature 1614-1684 mm.

Hazara on the North-western Frontier. They fall into the same group of Asiatic Xanthoderms as the Manchu, Tungus, the Kara-Kirghiz etc.

VII. Dolichocephalic Xanthoderms or Melanoderms—some Naga tribes on the North-eastern Frontier who show a strong Nesiot element with some Pre-Dravidian intermixture.

Nesiot—mesocephalic C.I. 76-78; nose often flattened, sometimes concave; stature; short, 1540-1570 mm.; undulating black hair, often tinged with red; skin tawny, fawn or rather light brown.



## CHAPTER VII.

### LANGUAGE

India is a vast country and a great variety of languages is spoken in different parts of it. According to Grierson there are about 179 distinct languages and about 544 dialects in India. These languages have been classified by him into the following five main groups :—

- (1) The Austric Family containing 7 languages and 14 dialects ;
- (2) The Tibeto-Chinese Family containing 116 languages and 86 dialects ;
- (3) The Dravidian Family containing 16 languages and 23 dialects ;
- (4) The Indo-European Family containing 38 languages and 402 dialects ;
- (5) The Unclassified Languages containing 2 languages and 19 dialects.

#### *The Austric Family*

The Austric Family has two Sub-Families—the Austronesian and the Austro-asiatic.

The Austronesian languages are represented in Madagascar, Indonesia and the Pacific.

The Austro-asiatic languages are found in Near and Further India. In India it has two branches—the Mon-Khmer and the Munda.

The Mon-Khmer language is spoken among the Khasis and it has three dialects. The Munda language is spoken among the Juangs, Savaras, Sonthals etc.

### *The Tibeto-Chinese Family*

It is represented by two Sub-Families—Siam-Chinese and Tibeto-Burman.

The Siam-Chinese is represented in India by the Ahoms, Khamtis etc.

The Tibeto-Burman Sub-Family is splitted into three Branches—Tibeto-Himalayan Branch, North-Assam Branch and Assam-Burmese Branch.

The Tibeto-Himalayan Branch is again divided into three Groups—Tibetan, Pronominalized Himalayan and Non-Pronominalized Himalayan.

The Tibetan Group is represented by the Bhotias etc.

The Pronominalized Himalayan Group is again divided into two Sub-groups—Western and Eastern.

The Western Sub-group is spoken among the Bunans, Janggalis etc.

The Eastern Sub-group is spoken among the Dhimals, Limbus etc.

The Non-Pronominalized Himalayan Group is represented by the Murmis, Lepchas, Newaris etc.

The North-Assam Branch is represented by the Akas, Abors, Daflas, Miris etc.

The Assam-Burmese Branch is further divided into seven Groups—Bodo, Naga, Kachin, Kuki-Chin, Burma, Lolo-Moso, and Sak. The Bodo Group is represented by the Kacharis, Garos, Rabhas etc.

The Naga Group is further divided into five Sub-groups—Naga-Bodo, Western, Central, Eastern and Naga-Kuki.

The Naga-Bodo Sub-group is represented by the Kacha Nagas, Kabuis etc.

The Western Naga Sub-group is represented by the Angamis, Semas etc.

The Central Naga Sub-group is represented by the Aos, Lhotas etc.

The Eastern Naga Sub-group is represented by the Changs, Namsangias etc.

The Naga-Kuki Sub-group is represented by the Mikirs, Marings, Marams etc.

The Kachin Group is represented by the Kachins.

The Kuki-Chin Group is further divided into five Sub-groups—Meithei, Northern Chin, Central Chin, Old Kuki, Southern Chin.

The Meithei Sub-group is represented by the Meitheis.

The Northern Chin Sub-group is represented by the Thados, Raltes etc.

The Central Chin Sub-group is represented by the Lusheis, Banjogis etc.

The Old Kuki Sub-group is represented by the Aimols, Chothes, Chirus, Hallam etc.

The Southern Chin Sub-Group is represented by the Khyangs, Khamis etc.

The speakers of the other three groups are found in Burma.

### *The Dravidian Family*

The Dravidian Languages are divided into five Groups—Dravida, Intermediate, Andhra, North-Western, and Semi-Dravidian Hybrids.

The Dravidian Group is represented by the Tamils, Kanarese, Todas etc.

The Intermediate Group is represented by the Malers, Khonds etc.

The Andhra Group is represented by the Telugus.

The North-Western Group is represented by the Brahuīs.

The Semi-Dravidian Hybrids are represented by the Ladhādis, Bhāriās.

*The Indo-European Family*

It has only one Sub-Family—Aryan.

The Aryan Sub-Family has been divided into three Branches—Eranian, Dardic or Pisacha and Indo-Aryan.

The Eranian Branch is splitted into two Groups—Persian and Eastern.

The Persian Group is represented by the Persians.

The Eastern Group is divided into two Sub-groups—Afghanistan-Beluchistan and Ghalchah.

The Afghanistan-Beluchistan Sub-group is represented by the Balochis, Poshtos etc.

The Ghalchah Sub-group is represented by the Wakhis, Shighnis etc.

The Dardic or Pisacha Branch is divided into three Groups—Kafir, Khowar and Dard.

The Kafir Group is splitted into two Sub-groups—Kafir and Kalasha-Pashai.



The Kafir Sub-group is represented by the Bashgalis, Wai-alas etc.

The Kalasha-Pashai Sub-group is represented by the Kalashas, Pashais, Diris etc.

The Khowar Group is represented by the Khowars, Chitralis etc.

The Dard Group is represented by the Kashmiris, Shinas etc.

The Indo-Aryan Branch is divided into three Sub-Branche—Outer, Mediate and Inner.

The Sanskrit speakers of this branch are nil.

The Outer Sub-Branch is further splitted into three Groups—North-Western, Southern and Eastern.

The North-Western Group is represented by the Sindhis, and Lahndas or Western Punjabis.

The Southern Group is represented by the Marathas, and Singhalese.

The Eastern Group is represented by the Bengalis, Beharis, Oriyas and Assamese.

The Mediate Sub-Branch is represented by the Eastern Hindi. The Inner Sub-Branch is further divided into two Groups—Central and Pahari.

The Central Group is represented by the Western Hindi, Panjabis, Gujratis etc.

The Pahari Group is represented by the Eastern, Central and Western Paharis.

*The Unclassified Languages*

The Unclassified Languages are represented by the Andamanese, Gipsy Languages and Burushakis or Khajumas.





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